Nutrition and Food Assistance

Food, Health, and Nutrient Supplements: Beliefs Among Food Stamp-Eligible Women and Implications for Food Stamps Policy

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Several U.S. professional organizations that develop research-based dietary recommendations for the public support the position that most nutrients can and should be obtained by eating a balanced diet. In contrast to these recommendations, supplement use by the public is a growing trend. Recent legislation has considered allowing the purchase of nutrient supplements with food stamps, but little is known about nutrient supplement use among low-income Americans. This qualitative study investigated the attitudes and beliefs of an ethnically and regionally diverse sample of food stampeligible women concerning the relationship between food, health, nutrient supplementation, and associated lifestyle factors. The research team conducted semistructured interviews with 72 women from New York City, Fort Smith, Arkansas, and San Francisco, San Jose, and Oakland, California. They interviewed approximately equal numbers of African-American, Asian, Hispanic, and White women in each site.

The authors report that the majority of women in their study held general philosophies about nutrient supplementation that were influenced by a variety of factors. These factors included their views about the nutritional adequacy of food by itself, the feasibility of achieving a healthful diet, personal health status or special needs, perceived benefits of supplements, personal experience (positive or negative) with taking supplements in the past, and their concept of what constitutes a supplement. The women's philosophies appeared malleable and/or negotiable, depending upon the degree of self-reflection, the clarification of existing information, the addition of new information, and changes in health status or income.

Many of the women interviewed view supplements as something that could replace or substitute for a healthful diet, but the sample was divided over the desirability of using supplements in this way. Most women acknowledged the difficulties of maintaining a healthful diet for themselves and their families, in part for reasons beyond their control, and they view supplements as a practical way to compensate. A smaller group expressed concern that not all dietary needs can be met in this way and that some people may not make wise decisions if the policy is changed. However, the majority feel this decision should be left to food stamp recipients themselves.

While the interviews revealed a strong preference on the part of food stamp-eligible women for changing the policy on supplement purchase, the authors point to some countervailing considerations. Specifically, they argue that the health benefits of a policy change may be quite limited because dietary deficiencies are rare in this population; that the potential exists for an unintended decline in the quality of food intake; and that there are imperfections and asymmetries in the information available on supplements and healthy eating.

The authors conclude that their findings suggest adopting a broad set of criteria in considering supplement-related policies for the Food Stamp Program, including anticipated impacts on food access, health promotion, and personal autonomy. They also recommend using a broader set of strategies to improve the nutritional health of the food stamp-eligible population.

A Comparison of Demographic Variables, Food/Nutrient Intakes, Level of Food Sufficiency, and Food/Nutrient Changes with Intervention Among Food Stamp Recipients and Nonrecipients in South Carolina, Tennessee, and Virginia

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The nutritional status and food sufficiency of lowincome individuals and their relationship to individual, dietary, and environmental factors are not well understood, but they are basic to improving the health and well-being of low-income individuals and families. In this study, Cason et al. examined the effects of food assistance receipt, nutrition education, and mother's workforce participation on the dietary patterns of rural households in South Carolina, Tennessee, and Virginia. They used food and nutrient intake data collected from 6,969 participants in the Expanded Food and Nutrition Education Program (EFNEP) and 3,552 Food Stamp Nutrition Education Program (FSNEP) participants in the three States during 1999/2000. They compared food stamp recipients with nonrecipients on relative dietary adequacy, recommended food-related behaviors, and other factors.

EFNEP and FSNEP are nutrition education programs targeted to low-income families and youth that teach how to make healthy food choices, prepare food safely, and manage resources to reduce food insecurity. EFNEP focuses on nutrition education for families with children; FSNEP focuses on education for families eligible for food stamps and serves food stamp recipients and nonrecipients. The Extension Service administers EFNEP and FSNEP programs at each university. Subjects in this study were participants in

EFNEP or FSNEP at Clemson University in South Carolina, The University of Tennessee, and Virginia Tech. To be included in the study, participants must have received education targeted to adult learners.

Demographic Comparisons

- ** The EFNEP group was 57 percent White, 40 percent African-American, and 3 percent Hispanic. Most (78 percent) were 19-50 years of age; another 18 percent were 18 years old or younger. The mean monthly income (not including the value of food stamps) was \$378, with 65-year-olds reporting the highest monthly incomes (\$437) and those 18 and under reporting the lowest (\$126). Food stamp recipients reported lower monthly incomes (\$349) than nonrecipients (\$649). Participation in the Food Stamp Program varied by age group. It was highest among 19-50 year olds (57 percent) and lowest among those 18 and under (22 percent).
- ** The racial and ethnic composition of the FSNEP group was similar to the EFNEP group, with a slightly larger percentage being African-American and a smaller percentage White. Most were either 65 years old or older (48 percent) or between 19 and 50 years old (34 percent). Monthly incomes were similar as well, except that those 18 and under had a higher average monthly income than the youngest EFNEP group (\$293). Food stamp participation rates were the same as for the EFNEP group among 19 to 50 year olds (56 percent), but higher than for the EFNEP group among those 18 and under (35 percent).

Food Security

- ** South Carolina—Twenty-nine percent of all South Carolina EFNEP and FSNEP households were food insecure during the 12 months ending in August 2000. Nearly 12 percent had one or more household members who were hungry due to inadequate resources for food at some time during the year.
- ** Tennessee—The authors found significant, but weak, associations between receiving food stamps and cutting the size of children's meals or adults cutting or skipping meals because there was not enough money to buy food. They also found that families on food stamps, particularly those living in farm and rural areas and in central cities, were more likely than nonrecipients to report running out of food before the end of the month with no money to buy more and being unable to afford balanced meals.

Diets and Food-Related Behaviors Before Nutrition Education

- ** EFNEP Participants—A comparison of the food and nutrient intakes of food stamp recipient and nonrecipient households revealed that food stamp recipients consumed more meat (2.3 versus 2.0 servings), less milk (1.2 versus 1.4 servings), and more fat (71.7 versus 67.9 grams) than nonrecipients. A comparison of responses to a 10-question food behavior checklist revealed significant differences for 4 of the 10 behaviors. Food stamp recipients more often reported planning meals ahead of time (20.3 percent versus 18.7 percent) and running out of food before the end of the month (10.3 percent versus 8.2 percent). Food stamp recipients were less likely than nonrecipients to report refrigerating meat and dairy foods within 2 hours of serving (45.7 versus 47.9 percent) and thawing frozen food correctly (34.0 versus 37.5 percent).
- ** FSNEP Participants—In this group, food stamp recipients consumed more fat (62.4 versus 56.3 grams) and had higher energy intakes (1,565.7 versus 1,490 calories) than nonrecipients. Food stamp recipients were less likely to report practicing food safety behavior by properly thawing frozen food than nonrecipients (33.7 versus 44.8 percent). Also, a lower percentage of food stamp recipients reported using the "nutrition facts" on food labels to make food choices (9.9 versus 14.9 percent).

Diets and Food-Related Behaviors After Nutrition Education

* EFNEP Participants—The authors found significant increases among food stamp recipients and nonrecipients for all food and nutrient intakes measured at the completion of nutrition education. However, they note that significant increases in servings of fats/sweets and in the total amount of fat may represent undesirable changes. Following nutrition intervention, recipients increased their intake of fruit and vitamin C significantly above that of nonrecipients. In South Carolina and Virginia, all EFNEP graduates made improvements in several food and nutrition-related behaviors following intervention. A greater percentage planned meals ahead of time, compared prices when buying food, reported running out of food before the end of the month less often, shopped with a grocery list, refrigerated meat and dairy foods within 2 hours of serving, thawed frozen food correctly, thought of healthy food choices when deciding what to feed

- their families, prepared foods without adding salt, and ate something in the morning within 2 hours of waking. Graduates who received food stamps were more likely to thaw frozen food correctly than nonrecipients were.
- ** FSNEP Participants—Unlike the EFNEP participants, following intervention, FSNEP clients did not appear to make the undesirable increases in fats and sweets while they increased other dietary components. Food stamp recipients significantly increased their intakes of vitamins A and B6 compared with nonrecipients. FSNEP graduates also made improvements in food and nutrition-related practices. A greater percentage of all FSNEP participants planned meals ahead of time, compared prices when buying food, reported running out of food before the end of the month less often, shopped with a grocery list, refrigerated meat and dairy foods within 2 hours of serving, thawed foods correctly, thought of healthy food choices when deciding what to feed their families, prepared foods without adding salt, used "nutrition facts" on food labels to make food choices, and ate something in the morning within 2 hours of waking. Food stamp recipients differed from nonrecipients after intervention only in that they were less likely to eat something in the morning within 2 hours of waking.

Cason et al. note that although food stamps increase food purchasing power, they do not appear to ensure consumption of nutritionally adequate diets. They did not find substantial differences in the diets of food stamp recipients and nonrecipients at the time they enroll in EFNEP and FSNEP. They found food insecurity and hunger among both groups, and they found few differences between the groups after nutrition education. However, both groups consumed more nutritious diets and improved their food-related behaviors when they received nutrition education.

One goal of the Food and Nutrition Service is to help food stamp recipients bring their food choices and food preparation practices more in line with broadly accepted recommendations for healthful eating. Butler and Raymond (1996) indicated that adequate income was no guarantee of adequate nutrition, and reported that "even rudimentary knowledge of nutrition can increase nutrient intake considerably." The results of this study suggest that low-income individuals do benefit from the nutrition education provided through EFNEP and FSNEP.

Cason et al. conclude that all food stamp recipients would benefit from a long-term, sustained nutrition education program, which would complement the income subsidy provided by food stamps. Without such a program, they argue, access to supplemental food through food stamps may not promote healthier

diets or reduce disease risks. They recommend that food stamp recipients be enabled to make healthy food choices by increasing their nutrition knowledge and their awareness of increased health risk from inadequate or excessive food intakes.

The Effect of Acculturation, Social Integration, and the Food Stamp Program on Diet, Nutritional Status, and Food Insufficiency in the Adult U.S. Hispanic Population

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This study examined the determinants of dietary adequacy, nutritional status, and food insufficiency among Hispanic Americans residing in the United States between 1988 and 1994. The authors focused on how acculturation, social integration, and Food Stamp Program participation influenced these nutritional outcomes. The results provide a foundation for future research on health, dietary behaviors, and food insecurity of U.S. Hispanics. In addition, these results can assist public and private food assistance and social service programs in providing services to improve the health, nutritional status, and food security of lowincome, marginalized populations.

A primary goal of Healthy People 2010 is to decrease the health disparities that exist between population groups in the United States. Hispanic Americans have higher rates of overweight and obesity than non-Hispanic Whites, reaching 42 percent among adult Hispanic women. Rates of some nutrition-related chronic diseases, such as diabetes, are several times higher among Hispanics than the general adult population. The determinants of dietary patterns and disease outcomes are complex. Cultural norms often support a healthy diet. However, low income, poor education and language skills, and a lack of social support, among other factors, may undermine traditional dietary patterns. In addition, lack of nutrition and health services may place this population at increased

risk of poor nutritional status, disease and diseaserelated complications, and mortality.

The authors use the NHANES III sample for their analysis, including data on a total of 5,787 Hispanic individuals. The outcome variables of interest include dietary intake, food insufficiency, and body mass index. Explanatory variables for these outcomes included acculturation (language used at home, birthplace, and age at arrival in the United States), social integration (communication with social partners and participation in church or club), food stamp receipt, and individual and household characteristics.

Most sample individuals were married and lived in metropolitan areas. One-fifth of sample households were female-headed. Almost half of the sampled adults completed high school, but 15 percent had no formal education past fifth grade. The distribution of income was nearly bi-modal, with most adults living in households with incomes of less than 130 percent (43 percent of adults) or more than 185 percent of poverty (42 percent of adults). Almost one-fifth of households received food stamps at the time of the interview.

Nine percent of adults stated that they sometimes or often did not have enough to eat. Fourteen percent had cut the size of an adult's meal and 8 percent a child's meal because of a lack of money to buy food. Households receiving food stamps were more likely to report not having enough food and cutting the size of adults' and children's meals than nonrecipient households, even when controlling for income.

Among individuals with incomes of less than 185 percent of poverty, less acculturation (i.e., a later age at arrival in the United States) was associated with a better diet. For individuals arriving as adults, both the percent of energy as fat and saturated fat met Dietary Guidelines recommendations. These percentages increased, however, as time in the United States increased. Among those with incomes greater than 185 percent of poverty, Spanish-speaking individuals who came to the United States as children had the poorest quality diets (highest intakes of energy, protein, cholesterol, sodium, and percent of energy as saturated fat). A later age at arrival was associated with a decreased intake of grains but increased intake of fruits and lower percentage of energy intake as fat and saturated fat.

In regression models, the acculturation variables often acted independently. Spanish language was associated with lower intakes of energy, vitamin A, percent energy as fat, and an improved diet. Arrival in the United States as an adult was negatively related to percent of energy as fat and saturated fat and to body mass index. Spanish-speaking individuals who came to the United States as adults had higher intakes of folate and vitamin A. These results again show less acculturation was associated with a better diet. Socioeconomic status showed little association with dietary outcomes, suggesting that economic effects may be captured by other factors.

Social integration and use of food stamps also influenced some nutrition outcomes. Church attendance was associated with increased cholesterol and percent energy as fat, and a poorer quality diet. However, no-involvement in either church or clubs was associated with lower intakes of energy calcium, folate, and vitamin A. Living in a household that received food stamps was associated with a small increase in intakes of energy, protein, sodium, and zinc. However, BMI was also higher for individuals in food stamp households.

Finally, the authors found increased risk of food insufficiency among those with less than a high school education, less social integration, low incomes, and food stamps receipt. Risk factors for adult meal size reduction included low education, low income, and

employment in agriculture. Cutting the size of a child's meal was related to low income, early age at arrival in the United States, and weak-to-low social integration. These results demonstrate the importance of education and income and the probable role of social networks in combating hunger and food insecurity.

This study demonstrates that within the Hispanic population, acculturation, social integration, and Food Stamp Program participation affect diet, nutritional status, and food insufficiency. Other factors were also important. Intakes of calcium and folate were generally very low, demonstrating widespread deficiencies of these nutrients in the Hispanic population at the time of the study. Less acculturation was associated with lower fat intakes, which is important in the fight against obesity and chronic diseases. Low income was a strong predictor of food insufficiency; being foreignborn also increased the risk of child hunger. Although the effects of socialization were less strong, they suggest that being integrated into the community is associated with better dietary outcomes. Food stamp receipt was associated with food insufficiency; however, further research would be necessary to determine causality. The authors conclude that food and nutrition assistance outreach should encourage individuals and their social networks to maintain traditional dietary patterns, as these were generally healthier.

Monitoring the Nutritional Status of Navaio Preschoolers

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The purposes of this project are to determine the nutritional status of Navajo preschoolers and to document the impact of recent food assistance changes on the nutritional and socioeconomic well-being of Navajo children and their families. Pareo and Bauer assert that the dietary patterns of preschool children are an important object of study because they directly reflect the food choices made by children's caregivers, providing indicators of the use of nutrition knowledge and of the need for nutrition interventions. Also, preschool children are themselves emerging nutritional decision-makers, becoming increasingly assertive about their food preferences and affecting the family's shopping/food procurement approach.

The authors' specific aims are to:

- ** determine the proportion of children's diets that are made up of USDA food assistance program products;
- ** determine the patterns and strategies used by families to obtain food—use of food supplementation programs, shopping strategies, and decision-making about the use of these food sources;
- ** investigate the effects of employment, residence, and other factors on the above; and
- ** provide a dataset that can be used to inform discussion of policy and funding changes contemplated for food assistance programs, as well as to provide information on the effectiveness of nutritional intervention strategies among Navajo families.

The data are similar to those collected in the 1992 Navajo Health and Nutrition Survey (NHNS) through a collaborative effort by the Indian Health Service, the Navajo Nation Division of Health, and the U.S.

Centers for Disease Control and Prevention. Results of that survey, published in 1997, applied to adults and children over the age of 12. Currently, there are no similar data available on Navajo preschoolers.

The authors began their research in this area in 1998 (through a small grant entitled "Monitoring Health and Nutrition on the Navajo Nation") with a focus on the accessibility and affordability of healthy, nutritious foods for Navajo people living in various parts of the Navajo Nation. They sought first to determine to what extent and in what areas the healthy choices being promoted by nutrition education programs such as WIC are available and affordable. In the current project, they extend their study to examine dietary intakes.

Pareo and Bauer collected data on a random sample of 171 students who participated in the Head Start program in the Shiprock Agency of the Navajo Nation in 1999. Their sample includes children attending Head Start centers or participating in the Head Start home base program within the Northeast portion of the Navajo Nation, including parts of New Mexico and Arizona. Trained Navajo interviewers administered a 24-hour dietary recall and a nutrition behavior survey during a home visit. They interviewed the caregiver who had observed everything the child consumed the day before the interview. The nutrition behavior survey included questions about the child's food preferences, the family's food preferences, the family's food choices and strategies for obtaining food, and demographics.

An interviewer coded and entered the diet recall data into the Food Intake Analysis System (FIAS, version 3.99). FIAS uses a subset of the USDA Nutrient Database for Food Consumption Surveys. The interviewer and data collection supervisor reviewed all food records for accuracy and coding consistency. The outcomes include:

- 1. Mean daily intakes of macronutrients and micronutrients;
- 2. Percent of nutrients contributed by food groups;
- 3. Meal patterns;
- 4. Foods consumed that were provided by food assistance programs; and
- 5. Percent of mean daily intakes of macronutrients and micronutrients contributed from foods provided by food assistance programs.

The authors reported on completed analyses of 84 interviews, with a goal of completing approximately 150 interviews in total.

Their preliminary data show that most respondents reported not participating in food assistance programs. The authors note, however, that participation may be underestimated because many respondents were uncomfortable with the question. About 50 percent of the households reported the mother as the primary caregiver. Many others reported both parents as the primary caregiver. Over 25 percent of the households were more than 50 miles from a grocery store. Over 70 percent of the households included two adults; about one-quarter had more than two. Most adults other than parents were children over 18. About 30 percent of households had two children. Approximately 52 percent of the respondents were not employed.

The median energy intake for preschool children in the sample was 1,800 Kcal; about 10 percent reported intakes greater than 2,900 Kcal. Protein intakes were well above recommended levels. About 35 percent of calories were from fat. Three nutrients—vitamin A, calcium, and iron—stood out as of particular concern. Vitamin A intakes were very skewed—nearly 50 percent of children sampled did not meet the recommended intakes, and nearly 25 percent were well below this level. Twenty-five percent consumed less than the recommended intakes of calcium and iron. The foods most frequently consumed were flour tortillas; fried potatoes; fruit-flavored beverages such as Kool-Aid, Hi-C, and Gatorade; spaghetti; Hamburger Helper; and bananas.

The authors also plan to examine differences in nutrient intakes by age and to measure nutrient density. They note that high energy intakes found in the preliminary results do not indicate nutritional adequacy. They also plan to merge their dietary data with a Head Start database that includes anthropometric measures.

The authors caution that their data may not accurately represent the dietary intake of preschool children. Interviewers reported difficulty administering the dietary recall because respondents did not understand the language or concepts used. Interviewers also questioned whether respondents reported a child's actual consumption or what was served.

Seasonal factors are also likely to have affected their results. Most of the interviews were conducted in the late summer when Head Start is not in session, and thus most of the foods reported were prepared at home. This is also the time of year when most fresh fruits and vegetables are available at lower cost; even so, few fruits and vegetables were reported.

Though the analysis is preliminary, Pareo and Bauer note several implications of their early results. First, they identify specific food behaviors that could be addressed in education programs targeting parents and Head Start staff. Increasing fruit and vegetable intake and increasing the variety of foods in the diet are possible areas for attention. High-energy intakes found for some children also indicate a need to address the risk of overweight at very young ages. The low reported use of food assistance in this sample also warrants further investigation. Finally, Head Start program administrators and parents are very interested in the findings and in using the results to improve food assistance and nutrition services in the Head Start program.

Do Poverty, Food Stamps, Food Label Use, and Nutrition Knowledge Affect Dietary Quality among Adults? Results from the 1994-96 CSFII/DHKS

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The Food Stamp Program has enormous potential for assisting with improved dietary behaviors in low-income households. The program places very few restrictions on the types of foods that people can buy. With the exception of alcohol and hot meals, food stamp recipients are allowed to purchase any of the thousands of products available to them in the many supermarkets and food outlets that accept food stamps. The main objective of this study is to examine: (a) the relationship of dietary quality to food label use and nutrition knowledge among low-income groups, and (b) whether food stamp receipt or income level modifies this relationship.

The authors analyze recent data from the 1994-96 Diet and Health Knowledge Survey (DHKS) and the Continuing Survey of Food Intake by Individuals (CSFII). They focus on 20- to 60-year-old respondents (N=2950) and the subsample of these respondents with incomes below 130 percent of the poverty line (N=767) who were household meal preparers, meal planners, or food shoppers. They used multivariate

logistic regression to estimate their model of dietary quality (measured as a Healthy Eating Index (HEI) below vs. above the median). Their main independent variables were socioeconomic and demographic characteristics, food stamp receipt, food label use, nutrition knowledge, and several interactive terms.

The authors found that dietary quality increased with the levels of income and education, and that it was also higher among White subjects and those whose interviews were conducted in Spanish. After adjusting for these factors, food label use and nutrition knowledge were independently and positively associated with dietary quality. The key finding from the interactive models was that the influence of income on dietary quality is mediated by food label use. Specifically, wealthier individuals (or population segments) who do not use food labels are as likely as low-income individuals not using the labels to have suboptimal dietary quality. In other words, dietary quality appears to be determined simply not by income, but also by the use of nutrition information tools such as food labels. The authors also found that, among food label users, income does make a difference in dietary quality and that food label use partially compensates for the influence of lower income on dietary quality. Their analyses of adults below 130 percent of the poverty line indicate that among nonusers of food labels, a significantly higher proportion of food stamp recipients than nonrecipients have an HEI score above the median. Similarly, among those not receiving food stamps, a significantly higher proportion of those using food labels have HEI scores above the median. The authors argue that nutrition information tools such as food labels are likely to be essential to making healthy food choices in the United States. They conclude that their results support a priority role for nutrition education as a component of food assistance programs like the Food Stamp Program.